

I claim:

1. A shock absorbing apparatus for use in a pumping apparatus comprising, in combination:

a tube having a north interior region and a south interior region and adapted to be coupled within a pumping system south of a sucker rod;

wherein said north interior region has a greater diameter than at least a portion of said south interior region;

north pores located in said tube and permitting a flow of fluid into and out of an interior of said tube;

south pores located in said tube and permitting a flow of fluid into and out of said interior of said tube;

a shaft located within said tube and capable of north and south movement relative to said tube;

a piston head coupled proximate a south end of said shaft;

wherein said piston head is adapted to enter said south interior region;

wherein said piston head is adapted to travel north of said south pores so as to permit fluid to alternately enter and exit through said south pores during pumping operations.

2. The shock absorbing apparatus of Claim 1 wherein said south interior region has a substantially funnel-shape.

3. The shock absorbing apparatus of Claim 2 wherein said piston head has a substantially bullet-shaped exterior configuration.

4. The shock absorbing apparatus of Claim 1 further comprising a bushing coupled to said shaft north of said piston head.

5. The shock absorbing apparatus of Claim 4 wherein said bushing is coupled to said shaft via a shear pin that passes through a shear pin opening in said shaft and wherein said shear pin is coupled at ends thereof to said bushing.

6. The shock absorbing apparatus of Claim 5 further comprising at least two shear pin openings in said shaft.

7. The shock absorbing apparatus of Claim 5 wherein said shear pin is adapted to shear at a pre-selected stress level.

8. A shock absorbing apparatus for use in a pumping apparatus comprising, in combination:

a tube having a north interior region and a south interior region and adapted to be coupled within a pumping system south of a sucker rod;

wherein said north interior region has a greater diameter than at least a portion of said south interior region;

wherein said south interior region has a substantially funnel-shape;

north pores located in said tube and permitting a flow of fluid into and out of an interior of said tube;

south pores located in said tube and permitting a flow of fluid into and out of said interior of said tube;

a shaft located within said tube and capable of north and south movement relative to said tube;

a piston head coupled proximate a south end of said shaft;

wherein said piston head is adapted to enter said south interior region;

wherein said piston head has a substantially bullet-shaped exterior configuration;

wherein said piston head is adapted to travel north of said south pores so as to permit fluid to alternately enter and exit through said south pores during pumping operations; and

a bushing coupled to said shaft north of said piston head;

wherein said bushing is coupled to said shaft via a shear pin that passes through a shear pin opening in said shaft and wherein said shear pin is coupled at ends thereof to said bushing; and

wherein said shear pin is adapted to shear at a pre-selected stress level.

9. The shock absorbing apparatus of Claim 8 further comprising at least two shear pin openings in said shaft.

10. A method for absorbing shock during pumping operations comprising the steps of:  
providing a tube having a north interior region and a south interior region and adapted  
to be coupled within a pumping system south of a sucker rod;  
wherein said north interior region has a greater diameter than at least a portion of said  
south interior region;  
providing north pores located in said tube and permitting a flow of fluid into and out of  
an interior of said tube;  
providing south pores located in said tube and permitting a flow of fluid into and out of  
said interior of said tube;  
providing a shaft located within said tube and capable of north and south movement  
relative to said tube;  
providing a piston head coupled proximate a south end of said shaft;  
wherein said piston head is adapted to enter said south interior region;  
wherein said piston head is adapted to travel north of said south pores so as to permit  
fluid to alternately enter and exit through said south pores during pumping operations;  
causing said shaft and said piston head to move in a north direction relative to said tube;  
during said movement in said north direction, drawing fluid into an interior of said tube  
via said south pores;  
during said movement in said north direction, pushing fluid out of an interior of said tube  
via said north pores;  
causing said shaft and said piston head to move in a south direction relative to said tube;  
during said movement in said south direction, drawing fluid into an interior of said tube

via said north pores; and

during said movement in said south direction, pushing fluid out of an interior of said tube via said south pores.

11. The method of Claim 10 wherein said south interior region has a substantially funnel-shape.

12. The method of Claim 11 wherein said piston head has a substantially bullet-shaped exterior configuration.

13. The method of Claim 10 further comprising a bushing coupled to said shaft north of said piston head.

14. The method of Claim 13 wherein said bushing is coupled to said shaft via a shear pin that passes through a shear pin opening in said shaft and wherein said shear pin is coupled at ends thereof to said bushing.

15. The shock absorbing apparatus of Claim 14 further comprising at least two shear pin openings in said shaft.

16. The method of Claim 14 wherein said shear pin is adapted to shear at a pre-selected stress level.

17. The method of Claim 16 further comprising the steps of:  
pulling said shaft in a north direction so as to impart stress at at least said pre-selected  
stress level on said shear pin;  
said shear pin failing; and  
said piston head travelling in a north direction relative to said tube so that at least a  
portion of said piston head passes said north pores, permitting fluid to exit an interior of said  
tube therethrough and thereby causing an upward shock force.